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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/789,539

02/27/2004

Bruno De Man

129405-1/YOD

9455

GERD:0049

7590

04/13/2007

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EXAMINER

SONG, HOON K

ART UNIT

PAPER NUMBER

2882

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
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3 MONTHS

04/13/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/789,539

Applicant(s)

DE MAN ET AL.

Examiner

Hoon Song

Art Unit

2882

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,7-10,13,14,16-19,21,23-26,29-35,38 and 39 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1,7-10,13,14,16-19,21,23-26,29,30,32-35,38 and 39 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 4/4/06.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: ____.

DETAILED ACTION

Allowable Subject Matter

The indicated allowability of claims 1, 7-10, 13-14, 16-19, 21, 29-35 and 38-39 is withdrawn in view of the newly discovered reference(s) to Hsieh et al. (US 6754300B2).

Rejections based on the newly cited reference(s) follow.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 7-10, 16-17, 21, 23-24, 29-30, 32-35 and 38-39 are rejected under 35 U.S.C. 102(b) as being anticipated by Hsieh et al. (US 6754300B2).

Regarding claim 1, Hsieh teaches a CT imaging system, comprising:

an X-ray source (14) comprising two or more emission points (100) that are offset from one another such that the emission points sample substantially different portions of a field of view (figures 6-8);

a rotatable detector array (18) comprising a plurality of detector elements, wherein each detector element is configured to generate one or more signals in response to radiation emitted by the two or more emission points; and

a system controller configured to control the two or more emission points such that the flux of the radiation emitted by the respective emission points is determined

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based on at least one of the respective view relative to the field of view or a path length through a patient at the respective view (column 6 lines 19-32).

Regarding claim 7, Hsieh teaches the X-ray source comprises duplicate emission points (100) along a longitudinal axis.

Regarding claim 8, Hsieh teaches the X-ray source comprises offset emission points (100) along a longitudinal axis.

Regarding claim 9, Hsieh teaches the two or more emission points are rotated about the field of view such that each emission point, when activated, emits a respective stream of radiation from a respective view (figures 1 and 2).

Regarding claim 10, Hsieh teaches the two or more emission points are rotated by mechanically rotating the emission points about the field of view (figure 1).

Regarding claim 16, Hsieh teaches a computer system (36) configured to receive the one or more signals and to process the one or more signals to generate one or more images; and an operator workstation (40) configured to display the one or more images.

Regarding claim 17, Hsieh teaches a method for CT imaging, the method comprising the acts of:

emitting respective streams of radiation from each of two or more X-ray emitters (100) that are offset from one another such that the X-ray emitters sample substantially different portions of a field of view (figures 6-8), wherein the flux of the radiation emitted by the respective emission points is determined based on at least one of the respective

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view relative to the field of view or a path length through a patient at the respective view (column 6 lines 19-32); and

acquiring a plurality of signals from a rotatable detector (18), wherein the plurality of signals are generated in response to the respective streams of radiation.

Regarding claim 21, Hsieh teaches mechanically rotating the two or more X-ray emitters about the field of view (figure 1).

Regarding claim 23, Hsieh teaches a computer readable medium encoded with a computer program media, for imaging a field of view, comprising:

a routine for emitting respective streams of radiation from each of two or more X-ray emitters (100) that are offset from one another such that the X-ray emitters sample substantially different portions of a field of view, wherein the flux of the radiation emitted by the respective emission points is determined based on at least one of the respective view relative to the field of view or a path length through a patient at the respective view (column 6 lines 19-32);

a routine for acquiring a plurality of signals from a rotatable detector (18), wherein the plurality of signals are generated in response to the respective streams of radiation.

Regarding claim 24, Hsieh teaches a routine for acquiring a plurality of signals from a detector, wherein the plurality of signals are generated in response to the respective streams of radiation; and a routine for processing the plurality of signals to generate one or more images (column 3 lines 10-24).

Regarding claim 29, Hsieh teaches a imaging system, comprising:

an X-ray source (14) comprising two or more offset emission points (100); an X-ray controller configured to differentially activate the two or more emission points such that at least one of the number of activations, the durations of activation, or the energy or the flux of the emitted radiation differ based on the respective view or based on a path length through a patient at the respective view (column 6 lines 19-32);

a rotatable detector array (18) comprising a plurality of detector elements, wherein each detector element is configured to generate one or more signals in response to the radiation emitted by the two or more emission points (column 3 lines 10-24).

Regarding claim 30, Hsieh teaches a CT imaging system, comprising:

an X-ray source (14) comprising two or more emission points (100), wherein X-rays emitted by each emission point pass through substantially non-overlapping regions of a field of view (figures 6-8);

a rotatable detector array (18) comprising a plurality of detector elements, wherein each detector element is configured to generate one or more signals in response to the emitted X-rays; and

a system controller configured to differentially operate the two or more emission points to maintain a substantially uniform flux profile at the detector array (column 3 lines 65).

Regarding claim 32, Hsieh teaches at least one emission point is activated less frequently than at least one other emission point (figures 6-8).

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Regarding claim 33, Hsieh teaches at least one emission point is activated for less time than at least one other emission point (figure 7).

Regarding claim 34, Hsieh teaches at least one emission point is operated at a lower energy than at least one other emission point (figure 6).

Regarding claim 35, Hsieh teaches at least one emission point is operated at a lower flux than at least one other emission point (column 6).

Regarding claim 38, Hsieh teaches the two or more emission points are radially offset from one another (figure 2).

Regarding claim 39, Hsieh teaches the different portions of the field of view are different radial portions of the field of view (figure 2).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 13-14, 18-19 and 25-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hsieh.

Hsieh teaches fails to teach a first subset of the two or more emission points are activated at a first set of views and wherein a second subset of the two or more emission points are activated at a subset of the first set of views.

A selective activation of line source is known in the art.

It would have been obvious to one of ordinary skill in the art at the time of the invention to adapt the line source controller of Hsieh with the known selective activation, since it would reduce overall patient dose.

Allowable Subject Matter

Claim 31 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

Regarding claim 31, Hsieh teaches at least one emission point emits a respective stream of radiation that passes through the central region of the field of view and at least one emission point emits a respective stream of radiation that does not pass through the central region of the field of view as claimed in dependent claim 31.

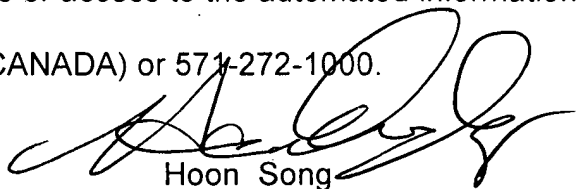
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hoon Song whose telephone number is (571) 272-2494. The examiner can normally be reached on 9:30 AM - 7 PM, Monday - Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Glick can be reached on (571) 272 - 2490. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

A handwritten signature in black ink, appearing to read 'Hoon Song', is positioned above the printed name and title.

Hoon Song
Primary Examiner
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4/10/2007